

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. After amending the claims as set forth above, claims 1-10 and 12-17 are now pending in this application.

Applicants wish to thank the Examiner for the careful consideration given to the claims.

Drawing Objections

The drawings are objected to for failing to show every feature of the invention specified in the claims, particularly the metal shield wrapped around the first and second conductor as recited in claim 10. In order to expedite prosecution, Applicants have attached hereto an amended Figure 1 that illustrates the metal shield connected to earth. Amended Figure 1 finds support, *inter alia*, in the original specification at the paragraph beginning at page 5, line 2, and original claim 10. Applicants have submitted the amended Figure 1 solely to expedite prosecution and do not believe that this drawing is necessary to understand the invention. Reconsideration and withdrawal of the objection are respectfully requested.

Claim Objections

Claim 11 is objected to as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 11 has been cancelled, which renders this rejection moot.

Claims 1-13 are objected to because of various informalities. Claims 1 and 10 have been amended to correct these informalities. Reconsideration and withdrawal of the objection are respectfully requested.

Rejection of claim 12 as being anticipated by Ng.

Claim 12 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,756,600 ("Ng"). This rejection is traversed for at least the reason that Ng does not teach, disclose, or suggest the claimed invention.

For example, claim 12 (as amended) recites “wherein said first conductor and said second conductor are prevented from having a positive electrical voltage” which is not disclosed or suggested by Ng. Ng discloses a method of increasing the lifetime of an ion source in an ion implantation system in which a filament 18 is provided in a vacuum chamber. At least one conductor attached to the filament 18 is connected to the positive terminals of the power supply 24 and the arc power supply 31 (Figure of Ng.), thus having a positive electrical voltage. Ng teaches that there can be a negative bias from the arc power supply 31 to the filament, i.e., that there is an overall negative voltage across the filament (see column 2, line 67 to column 3, line 5 of Ng), but there is no suggestion that both conductors attached to the filament are prevented from being positive. For at least this reason, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection of claims 1, 3, 5-6, and 8-9 as being unpatentable over Ng and Jang.

Claims 1, 3, 5-6, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng in view of U.S. Patent 6,483,068 (“Jang”). This rejection is traversed for at least the following reasons.

For example, claim 1 (as amended) recites the features of providing an infrared radiation means, two conductors to and from the radiation means, and applying electrical voltage across the infrared radiation means. These features are not disclosed or suggested by Ng. Ng discloses a method of increasing the lifetime of an ion source in an ion implantation system in which a filament 18 is provided in a vacuum chamber for providing an arc. The PTO correctly states that Ng does not teach an infrared radiation means. However, the PTO then asserts that Jang teaches infrared radiation sources and “it would have been obvious to... modify the radiation source of Ng et al. with the infrared radiation source of Jang to provide a radiation source wherein the temperature is easily controlled, thereby improving the reliability of the fabricating process of a semiconductor device.” (Page 6 of Office Action.) Applicants respectfully disagree for the follow reason.

Ng and Jang deal with two entirely different technologies. The “radiation source” in Ng is a filament used to create an arc for producing ionized gas. The infrared sources in Jang

are used to hard bake a photoresist pattern on a semiconductor substrate. These technologies, although used in the semiconductor industry, are completely different from each other for producing two different effects in two different processes for two different purposes. There is no suggestion in Jang, Ng, or the prior art that infrared lamps can be used in producing ionized gas. The production of ionized gas in Ng requires a large amount of power (e.g., 400 Amps as stated in column 2, lines 55-61 of Ng) that the infrared lamps of Jang simply cannot provide. Thus, the proposed combination (substituting the infrared lamps of Jang for the filament of Ng) would make the device of Ng unsuitable for its intended purpose, i.e., the production of ionized gas. As stated in MPEP 2143.01, “[i]f the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).” Thus, there is no motivation to combine the teachings of Ng and Jang as suggested by the PTO because the infrared lamps of Jang (used to harden photoresist) are not capable being used to produce ionized gas (as disclosed in Ng). For at least this reason, claim 1 is not rendered unpatentable over the prior art.

Claims 3, 5-6, and 8-9 are at least allowable for the same reasons as claim 1 from which they depend without regard to the further patentable features contained therein.

For at least these reasons, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection of claim 10 as being unpatentable over Ng, Jang, and Golladay.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ng and Jang in view of U.S. Patent 6,091,187 (“Golladay”). This rejection is traversed for at least the following reason. As previously mentioned, there is no motivation to substitute the infrared lamps of Jang in the method and device of Ng. Golladay does not cure this deficiency. Thus, claim 10 is allowable for at least this reason without regard to the further patentable limitations contained therein. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection of claims 2, 4, 7, and 13 as being unpatentable over Ng, Jang, and Bluck.

Claims 2, 4, 7, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng and Jang in view of U.S. Patent 6,101,972 ("Bluck"). This rejection is traversed for at least the following reasons. As previously mentioned, there is no motivation to substitute the infrared lamps of Jang in the method and device of Ng. Bluck does not cure this deficiency. Furthermore, the teachings of Bluck are not applicable to the infrared lamps of Jang because Bluck teaches the production of ionized gas while Jang merely teaches the use of lamps for hard baking a photoresist pattern. These two different processes are completely different and one with ordinary skill in the art would not apply the teachings of Bluck to the teachings of Jang because each process is governed by different considerations and operational parameters. Thus, claims 2, 4, 7, and 13 are allowable for at least this reason without regard to the further patentable limitations contained therein. Reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 7/19/2006

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Amendments to the Drawings:

The drawing sheet attached in connection with the above-identified application containing Figures 1-3 is being presented as a sheet to be substituted for the previously submitted drawing sheet. Figure 1 has been amended. Appended to this amendment is an annotated copy of the previous drawing sheet which has been marked to show changes presented in the replacement sheet of the drawing.

The specific changes which have been made to Figure 1 include: Figure 1 has been enlarged; isolated feed-throughs 22 and 24 have been enlarged; the metal shields 82, the earth ground connections 84, and the reference numerals 82 and 84 have been added.

Title: HEATING IN A VACUUM ATMOSPHERE IN THE PRESENCE
OF A PLASMA

Inventor(s): Wilmert DE BOSSCHER et al.

Appl. No.: 10/500,855

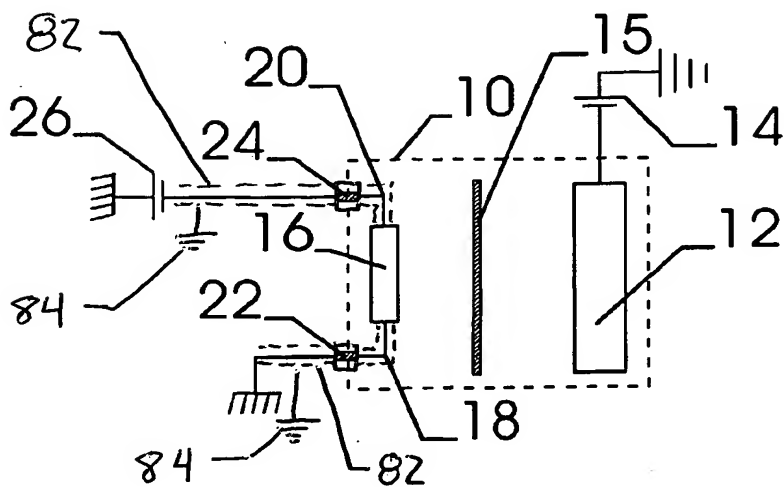


Fig. 1

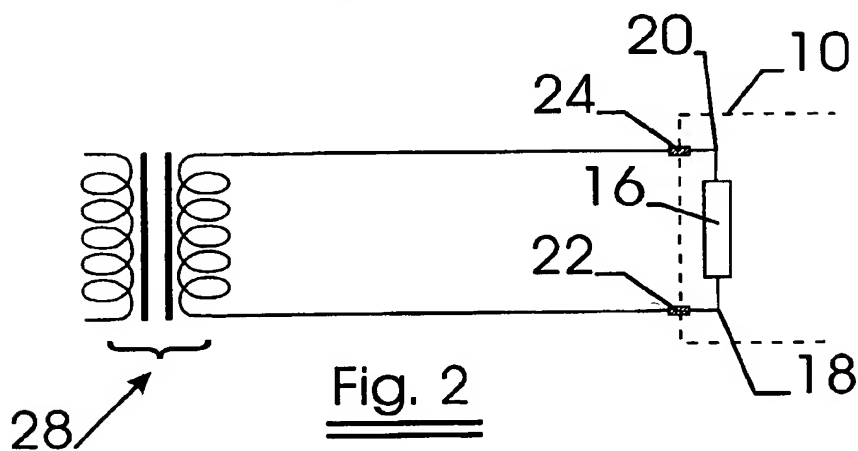


Fig. 2

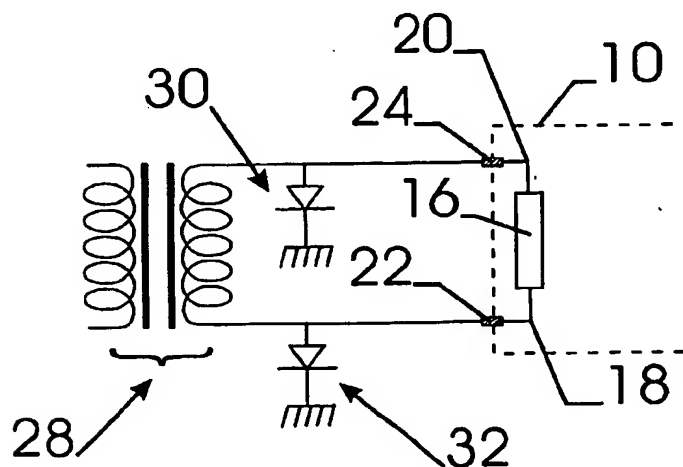


Fig. 3